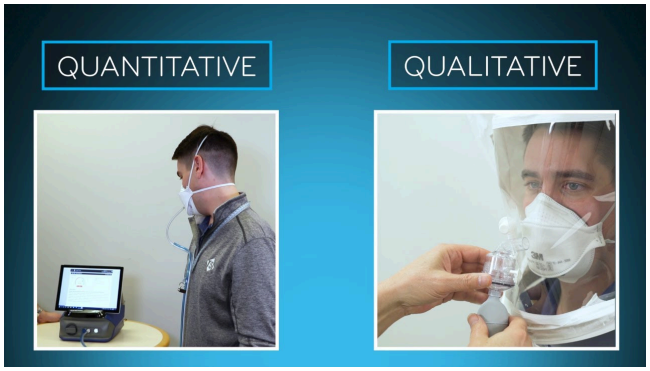
Fit Test Info

Why do a DIY Fit Test?

- It's a cheap and easy way to ensure your mask is protecting you to the level that the manufacturer printed on the package.
- One tiny leak that you can't feel could make a particular N95/FFP3/KF94 (or whatever you choose) an ineligible mask...at least for your particular face shape.
- A Fit Test is the best objective way to know which mask fits you well and will keep you protected so you can be confident when out living your life.

NOTE: A DIY Fit Test is in addition to the user seal check you should do every time you put on a mask

to ensure a good seal is formed with no gaps or leaks.



What is a DIY Fit Test?

- A DIY Fit Test is what's known as a "Qualitative Fit Test" (QLFT), which is a pass/fail method that relies on senses (taste and smell) to detect air leakage from your respirator.
- A qualitative Fit Test is suitable for filtering facepiece respirators (aka disposable masks) and half-face masks fitted with particulate or combination filters.
- You can opt to use a sweet or bitter test solution, that will be misted into a large hood placed over your head while you wear each mask you'd like to test and perform seven different exercises.

- It is a proven test method in low-resource environments, but we like to think of it as a cheap and easy way to know your mask is as protective as it can be.

NOTE: This test is not going to measure the precise amount of leakage into a mask like a quantitative Fit Test, which is performed by a machine such as a PortaCount® calculating the measurements.

What are the 7 exercises of a DIY fit test?

The following seven exercises are to be performed for 1 minute each (source) during the testing of each mask:

1. Normal breathing
2. Deep breathing
3. Moving head side to side
4. Moving head up and down
5. Bending over at the waist (or jogging in place if fit test hood doesn't permit bending)
6. Talking
7. Normal breathing again

Example: one-page PDF from 3M that lists all seven exercises, which can serve as a great reminder during your testing. And if you want additional details on how these exercises should be performed, here's the guidance from OSHA
https://www.osha.gov/.../standardnumber/1910/1910.134AppA

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If you have successfully completed those exercises without detecting the sweet or bitter taste, feel free to add any movement that is of particular concern to you.

For example, you might want to add a modified "grimace" exercise, which is only required by OSHA as part of a quantitative (aka PortaCount®) fit test. The "grimace" test is when the subject smiles or frowns for 15 seconds and evaluates whether the mask re-seats and re-seals on the face for the remaining 45 seconds.

So for a modified version:

- Smile and/or frown for a total of 15 seconds without misting the test solution into the hood.
- Then relax your face, mist the solution into the hood for 3-5 seconds like you normally would. Then breathe normally for 45 seconds to see if you detect the sweet/bitter solution.

*This modified grimace test is not part of the official qualitative testing protocol so "failing" it by detecting the sweet or bitter taste does not mean the mask fails DIY fit testing. It would, however, mean that you should be mindful that your mask does not re-seal well on your face, which may mean you opt to use some double-sided tape.

see mask add ons post to enhance the seal of your mask in particularly high risk environments.

DIY Fit Test Supplies

Shamelessly cribbed much of what I know from u/philipn's great Twitter thread, which I find myself sharing almost daily. As of January 29, you can now skip running around and finding all the supplies. Buy a ready-to-roll $39.99 DIY fit test kit from u/philipn right here on his Big Cartel page

*His kit is awesome, and I will totally buy from him for friends and extended family.

1. Buy a cheap nano mister from Amazon or similar. Searching for "nano mister usb" brings up many of options.
2. Make a saccharine solution or purchase a bitter solution. In the USA, Sweet 'N Low is saccharine, and saccharine is available online in other countries. See PhilipN's awesome test fit video at 10:25 to get the recipe for the saccharine solution. For bitter, buy 3M Fit Test Solution FT-32 or similar from another maker of Fit Test solutions.
3. Deionized (DI) or distilled water from a grocery store or similar
4. Make a make-shift test hood using a tall kitchen (13 gallon) trash bag, XXL clear zipper top storage bag, or similar. For thinner bags like a kitchen trash bag, I tape an old bubble mailer in the bottom of the bag so it helps the "hood" stand out away from the test subject's face. I also cut a small hole in the bag so I can easily mist inside the hood while it's fitted kinda snugly but not tight around the test subject's shoulder area.
5. Any add ons you might need to help your mask pass. Please know these same add ons will need to be worn every time you wear the mask to ensure you are well protected. Only you can decide when too many add ons are needed to pass the test with a certain mask. Personally, I'd rather wear my N95 that passes a fit test without any additions than to have to use wig/toupee tape and an s-hook to be well protected in my KF94s when caseloads are high/increasing in my area. It's okay if you feel differently, though. 🙂
6. A timer. Your mobile timer is perfect for this.
7. A list of the seven exercises. This one page document is good, or just write them down.

8. Chocolate as the antidote for the bitter solution, and saltine crackers and water for the sweet solution. Feel free to tell yourself or others in your household that only a certain kind of chocolate bar is required to quash the bitter taste, but some of us have successfully used spoonfuls of Hersey's chocolate syrup in a pinch.

DIY Fit Test Instructions

Before beginning the official fit tests, do a taste test to ensure the test subject can taste the sweet or bitter test solution.

1. Prep the nano mister with the taste test solution. If you have the FT-32 or similar bitter solution, you need to dilute it for the taste test. Add one part FT-32 to 10 parts water. It is suggested you use deionized (DI) or distilled water.
2. Put the test hood on the person.
3. Ask the person to breathe through their mouth with their tongue lolling out and ask them to indicate immediately when they taste the solution.
4. Puff about 3-5 seconds of solution into the hood using the nano mister. Puff longer if needed, and note generally how long it took to taste the solution. If the subject cannot taste the solution, try the other one. Most people are sensitive to one or both of the solutions.

5. Use your antidotes: Chocolate for bitter, and saltine and water for the sweet. Don't begin the fit test until the taste has cleared and make them wipe their lips to remove any traces of solution.

Now onto the actual mask fit testing. The simplest instructions are on the one-page PDF from 3M

I have slightly modified it for our DIY testing purposes below.

1. Fill the mister with the test solution. If you are using a bitter solution like FT-32, use it full strength, not the diluted version you made earlier.
2. Make sure the respirator is fitted correctly, including doing a user seal check. It is also a good idea to ensure other headworn PPE like safety glasses are worn during the fit test.
3. Put the test hood on the test subject.
4. Add the test solution in an initial 3-5 second puff (adjust as necessary based on taste test timing) and start the exercises.
5. After the initial dose, ask the person to carry out the seven exercises for one minute and indicate immediately if the solution is tasted. **Remember to add another 3-5 second puff of solution every 30 seconds.**
6. If the solution is not tasted after all seven exercises, they have passed the test with that respirator! If the solution is tasted, stop the test, clean your mouth, face and hands, refit respirator and start part one of the test again. If the solution is still tasted on the second attempt, stop the test, clean hands, mouth and face, and try another face Fit Test with an alternative mask.

Links:

Reddit Masks4All: Why a DIY fit test should be your next step after an N95
Reddit PhililpN: u/philipn
Reddit Masksforeveryone: https://www.reddit.com/.../m4es_why_how_to_do_a_diy.../...
At Home Fit Test: https://twitter.com/__philipn__/status/1619847765730930688?s=20
Where to Buy At Home Fit Test Materials:
https://fittests4all.bigcartel.com/product/home-fit-test-1